The Spotter's Page

Volume 5, Issue 1 Fall / Winter 2001

Summer in Autumn?

The excitement grows for Autumn events such as leaf peeping, apple picking, Halloween, and eventually Thanksgiving as the days grow ever shorter. The start of Autumn brings the promise of less humid days and crisp, clear nights. However in most years, and sometimes well into December, we are briefly reminded of summer's heat. So what is this weather phenomena, we often call Indian Summer, featuring unusually warm days and cool and star filled nights

Today, some may argue that this term is politically incorrect. However, history shows us that this term dates back at least 200 years, well before being politically correct or incorrect was considered. In an article published in the *Wisconsin Natural Resources Magazine* Dick Kalnicky writes: "the true origin [of Indian Summer] is not certain; the most probable suggestions relate it to the way the American Indians availed themselves of the extra opportunity to increase their winter stores." However, he also notes that European folklore also mentions Indian Summer equivalents that are used throughout English speaking countries.

The *Glossary of Meteorology* defines "Indian Summer" as a warm spell pre-

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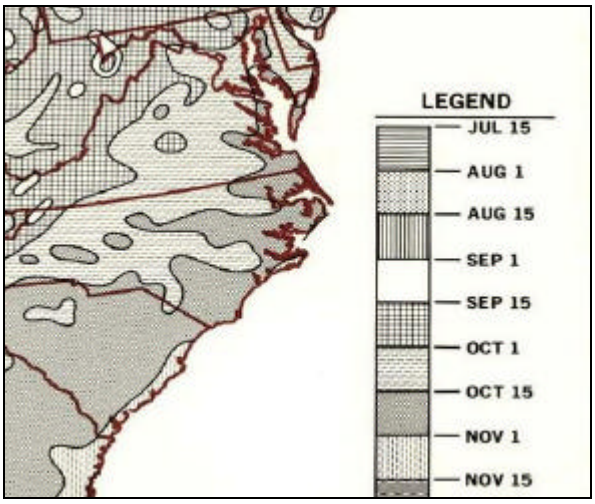
The Glossary of Meteorology defines "Indian Summer" as a warm spell which is preceded by one killing frost and usually a substantial period of normally cool weather.



Graphic 1: Depiction of climatological normal date of the first fall freeze.

Source lwf.ncdc.noaa.gov/oa/documentslibrary/frostfreemaps.html

Cooperative Research performed between Wakefield and UVA

In April 2001, the final report on a 3-year Cooperative Meteorological (COMET) research project undertaken with the State Climatological Office at the University of Virginia, was published in the American Meteorological Society's Weather and Forecast Journal. The report was entitled "**Development of a Discriminate Analysis Mixed Precipitation (DAMP) Forecast Model for Mid-Atlantic Winter Storms".**

This research designed is to improve the ability of forecasters to determine precipitation type and duration of wintry precipitation. This difficult forecast dilemma annually affects the Mid Atlantic Region in the winter and early spring, and has significant public safety and economic impacts. Researchers focused on a specific surface pressure pattern called Cold Air Damming, which commonly causes a mixture of wintry precipitation across the Mid Atlantic Region.

During a Cold Air Damming event, a high pressure system is centered in the Eastern Great Lakes or Western New England States. This high funnels cold Canadian air south along the eastern slopes of the Appalachian mountains into areas as far south as Northern Georgia. This cold air becomes trapped in the

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Inside This Issue

RIP CURRENTS...A THREAT TO LIFE

What is a Rip Current?

A rip current is strong narrow channel of water that flows from the surf-zone out to sea. It develops when breaking waves push onshore, then gravity pulls the water back out to sea. If the water converges into a narrow river like channel moving away from shore, a Rip Current forms. *(See Graphic 2)* Rip Currents are sometimes mistakenly called an undertow. However, a rip current will not pull you under the water surface. Rip currents can be 50 feet to 50 yards in width, and the strength of the current can be up to 3 to 5 mph, which can carry even a strong swimmer into deeper water beyond the sandbar. The development and persistence of a Rip Current requires a mass transport of water from **WIND...WAVES and/or SWELL**. The swell or waves produce the greater than normal mass transport of water onto the beach, causing an above normal volume of receding water, and the channel or **Rip Current** is formed.

The threat to life from rip currents, has led to the establishment of the **Mid Atlantic Rip Current program** called **MALURCS**. MALURCS is Mid Atlantic Lushine Rip Current Scale, named after Jim Lushine, who began a rip current program for the southeast Florida coast several years ago.

Several Rip Current drownings occur each year along the Mid Atlantic coast. Preliminary Statistics as of July 2001 indicate that eight rip related drownings have occurred from North Carolina to Massachusetts. Several Rip-deaths also occurred in the northern Gulf of Mexico due to Tropical Storm Allison.

The Beach Patrol, lifeguards and EMS, (Emergency Medical Services) make thousands of rescues each year, saving many lives. *(See Table 1 for a summary of the past 5 years National Life Saving Statistics.)* Still Rip Current drownings each year exceed the number of lightning deaths in this U.S., and is now the number 3 weather related killer behind Heat Stress and Flooding. In an effort to assist with daily safety beach operation, the National Weather Service office in Wakefield, along with other offices along the East Coast, have embarked upon a new program to forecast Rip Currents based upon favorable meteorological pat-

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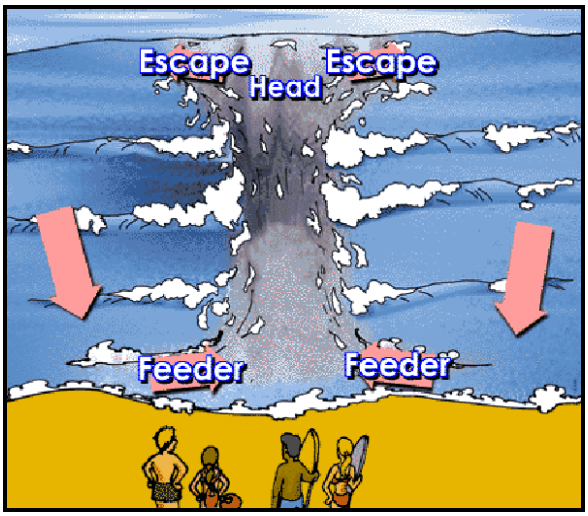

Graphic 2: Shows the initial development of a rip current. The arrows show the water feeding into the current then the darker area is the water flowing back to sea

National Lifesaving Statistics

	TOTALS	
	1999	2000
Beach Attendance	281,194,600	
Rescues	54,627	
Primary Cause Rip Currents	23,252	Approx 23,000 (Approx 9000 on

	1995	1996	1997	1998	1999	2000
Drownings	118	79	98	111	70	Just
Unguarded	100	69	84	104	59	
Guarded	18	10	14	7	11	

Table 1: Depicts a summary of the National Life Saving Statistics 1995-99. Final information is not yet available for 2000 or 2001.

letter from The editor

The Spring/Summer 2001 spotter training season proved to be very active. We conducted 18 training seminars and had over 400 people in attendance. This brings our total number of spotters to 1163. Accomack added the most new spotters, followed closely by Chesapeake, Portsmouth, and Wicomico and Worcester counties in Maryland. Even with the addition of new spotters, we still have areas that are sparsely represented *(See Table 2)*. If you know of someone you think would be interested in the SKYWARN program, please encourage them to attend a training session. We do not have an age limit for being a Skywarn volunteer, and this is a good way for a budding meteorologist to begin their career. SKYWARN spotter training will continue this fall and winter. If you would like to host a SKYWARN training session, please call Bill Sammler at (757) 899-5732 x223 or e-mail him at william.sammler@noaa.gov.

On behalf of the Wakefield staff and the other Skywarn spotters, I would like to WELCOME our members to the program, and say how much we appreciate your dedication to be a part of such a vital program to the National Weather Service and your local area. If you are a new spotter or it has been awhile since you have observed reportable weather, please refer to the *Good Reports vs. Bad Reports* article *(Page 4)* for recommended guidelines of an effective report. Please remember to always give your Spotter ID when relaying a report. You will find your ID in the upper left side of your mailing label. However, if you cannot

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County/Indp't City	*Number of New*	*Number of*	*County/Indp't City*	*Number of New*	*Number of Spotters*	*County/Indp't City*	*Number Of New*	*Number of*
Virginia			**Virginia Con't**			**Virginia Con't**		
Accomack	22	38	King and Queen		3	Suffolk	1	25
Amelia	1	17	King William		3	Surry		0
Brunswick		4	Lancaster		13	Sussex	1	5
Caroline		6	Louisa		17	Virginia Beach	11	92
Charles City		5	Lunenburg	1	12	Westmoreland		2
Chesapeake	16	62	Mathews		5	Williamsburg		7
Chesterfield	7	71	Mecklenburg		16	York	1	19
Colonial Heights	1	10	Middlesex		1	**Maryland**		
Cumberland	1	6	New Kent	1	7	Dorchester	8	12
Dinwiddie		2	Newport News		83	Somerset	6	9
Emporia (City)		0	Norfolk	7	29	Wicomico	13	36
Essex		1	Northampton	2	4	Worcester	14	18
Fluvanna	8	26	Northumberland	1	3	**North Carolina**		
Franklin (City)		7	Nottoway	1	16	Bertie	1	14
Gloucester	1	47	Petersburg (City)	2	7	Camden	4	8
Goochland		7	Poquoson (City)	1	6	Chowan		5
Greensville		0	Portsmouth (City)	15	33	Currituck		3
Hampton	7	33	Powhatan		6	Gates	1	10
Hanover		20	Prince Edward		18	Hertford	4	31
Henrico	7	48	Prince George	1	11	Northampton	1	21
Hopewell (City)		6	Richmond (City)		41	Pasquotank	1	10
Isle of Wright	2	21	Richmond County		0	Perquimans	2	8
James City	1	15	Southampton		19			

Table 2: Number of spotters within each county or independent city in Wakefield's area of responsibility. The first column is the number of new spotters added in 2001 and the second column is the total number of spotters. The shaded boxes highlight the counties which additional spotters are desperately needed.

good Severe Weather reports Verses bad reports

Even though we are nearing the end of hurricane season, we could still see a late season storm. Thus for this issue, we will focus specifically on reporting weather conditions during a tropical event or even coastal storm. As with any report, you should include the following information:

1) Your **Spotter ID.**
2) **Where** is the event occurring/ occurred?
3) The **Time/Duration** of the event.
4) **What is** actually happening/ happened?

Examples of good and bad reports:
Good - " Hi, my name is Josie Young, spotter ID XXXXX. Winton, NC in Hertford County. Our rainfall total, since 10 AM is 4.5 inches. We have received 2 inches in the last hour and a half. After calling a few of my friends in the area, I have no flooding to report."
Bad - " This is John from down the road. The rain is harder than it was two hours ago**."** (This person only gave his first name so even if he is a spotter, we would not be able to identify him. More importantly, he did not give a location, rainfall total or even any indication of any flooding.)
Good - " Hi, this is Nick Martin, spotter ID XXXXX. I am 3 miles east of Eastville in Northampton County VA. I live along the Ramshorn Bay. I have been watching the water levels and am estimating that we are currently 3 feet above normal tide levels. We are seeing some Coastal Flooding in low level areas. If the current rate of rise continues, approximately a half a foot every 2 hours, we will have flooding problems along County Route 631 in a few hours. (This is an excellent

(Continued on page 7)

Reportable Hurricane/Coastal Storm Events

1. **Tornadoes– Location, movement, and damage**
2. **Damage – such as structural damage, trees down or even power lines down and amount of people without power.**
3. **Storm Surge and Coastal flooding information – included water levels, extent of flooding (how far inland?), water in buildings and road closures.**
4. **Inland Flooding – Roads Closed (specific names and routes) bridges washed out, water in buildings, streams and rivers flowing out of banks.**
5. **Rainfall – Under dry conditions, begin reporting at 3 inches then every inch there after. Under wet conditions, begin reporting at 2 inches then every inch there after.**

Table 3: Hurricane/Coastal Storm Conditions to report to NWS Wakefield.

Reportable Severe/Winter Weather Events

1. **Tornadoes– Location, movement, and damage; funnel clouds, wall clouds or waterspouts**
2. **Wind – 50 mph or stronger , wrist size or larger branches broken off trees, power lines down**
3. **Hail – ANY size**
4. **Flooding – Rivers or creeks near bankfull or out of banks, water over roads or any coastal flooding.**
5. **Rainfall – 1 inch or more in an hour.**
6. **Snow – 1 inch or more per hour; when snow depth is 2 inches or greater.**

Table 4: Severe/Winter Weather Conditions to report to NWS Wakefield.

NWS Wakefield Webpage: weather.noaa.gov/akq
E-mail: william.sammler@noaa.gov

Important Phone Numbers:
Severe weather reports ONLY line: 1-800-737-8624
Public phone line (for Forecast Information): (757) 899-4200
FAX : (757) 899-3605/5107 (Operations area)
Spotter Report E-Mail: akq-report@noaa.gov

COOPERATIVE CORNER

Good Bye to a dedicated observer

Mr. Thomas A. Pruitt of Tangier Island, Virginia passed away this July. He was a coop observer for over 26 years and introduced me to the dedication displayed by our coop volunteers. Shortly after I took over the program I received his monthly B-91 with a note of apology for missing 5 days of data but he had been in the hospital for open heart surgery. I talked to him shortly before his death, he had just returned home from the hospital and was trying to find a replacement observer due to his health. I had the pleasure of meeting Mr. Pruitt on several occasions and always came away with more information on the unique climate and history of Tangier Island.

Graphic 3: Fay Crossley presents Mr. Houston Camper with the pin and Certificate for 50 years of service as a co-op observer.

Update On Annual Visits

I have been able to visit many but not all of you during the past year. Our local staffing situation and unscheduled trips to make emergency equipment repairs has me behind the planned visit schedule. Thanks to my coworkers, my schedule has been modified to allow more travel time so that I can get the visit program back on track. An important part of the visit program is to recognize certain milestones in each of your observing careers. Several awards that should have been presented this year have been delayed. My first priority will be to make these presentations before the year's end.

One presentation we did accomplish was to Mr. Houston M. Camper of Warsaw, Virginia for his 50th year. Mr. Camper was presented with a 50 year pin, a plaque and several certificates documenting his contributions to the program. *(See Graphic 3)* His wife Dorothy was also awarded a certificate recognizing her efforts. The unfortunate part of the presentation was that it was also his retirement. Mr. Camper was previously awarded the John Campanius award in 1991 for his outstanding accomplishments in the cooperative observing program.

Administrative Items

In the area of monthly B-91s, I have a couple of quick reminders. Neatness is very important. Remember, if we are unable to read the form, the data is lost. We have had several occasions where we have called the observer to clarify the entry, and they were not able to read it either. This is especially true when a correction is made. Please make the extra effort to ensure the data is readable. Also, some stations are still sending in two copies of the B-91. This is not needed, please just send us the original, and you may keep the carbon copy for your personal record. We need the original so that when we Xerox copies they are readable, making a copy of a copy does not always work. For those with computers I have a program called COMPU B-91 that will allow you to record daily readings and also to print a monthly form. If you would like to try it, drop me a note in with your next form. Also, if you are on the internet let me have your e-mail address. (Mine is Richard.Curry@noaa.gov) One last thing regarding the B-91, make sure to you include the AOFFICIAL@ station name in the first block.

NEW COOP LOCATIONS

I am frequently asked if I could use a cooperative station in a certain location. The following listing are counties where I currently **need** stations: **VIRGINIA:** Lunenburg, Essex, Westmoreland, Richmond, Lancaster, Surry, York, New Kent, James City, Charles City, and Cumberland counties. **NORTH CAROLINA:** Gates, Camden, Currituck, and Perquimans counties. If you know an interested that you think would make a good cooperative observer party in any of these locations , let me know.

By Rick Curry,
COOP Program Leader

Kudos to spotters

Climatologically speaking, 2001 has been below normal for severe weather occurrences. NWS Wakefield issued only 92 warnings from January through September, many of these in localized events where less than 10 warnings were issued. Generally, we issue 200 to 300 warnings per year. We did have a few events in which we issued more than 10 warnings. Typically when an event consists of just a few warnings, it is more difficult to verify since these events tend to be isolated in nature. Even with the odds stacked against us for verification, with your help and reports, we have verified 60 of those warnings.

Below are a few of the significant events this year. On May 22nd, a strong cold front, approaching from the Ohio and Tennessee Valleys, triggered 2 thunderstorm complexes, which moved east across the area. The first thunderstorm complex, which developed in the early morning hours, did not produce any severe weather, but did set the stage for the second complex, by leaving weak boundaries across central and southern Virginia. Isolated thunderstorms developed during the mid afternoon, but the more organized activity errupted in the evening hours. A total of 18 warnings were issued, 2 of which were tornado (VFLV026), assisted us in providing an excellent warning service that evening. Of the 18 warnings we issued, 15 warnings were verified.

The remnants of tropical storm Allison affected North Carolina, Maryland, and Virginia between June 14th and 16th. This storm caused flooding across eastern North Carolina and Virginia, as well as from the Gulf Coast Region through the Carolinas and into Pennsylvania. Allison was a slow moving storm, and low lying flooding began on the evening of the 15th. Most of the road closure and flooding information came from Emergency Crews and Emergency Managers. The highest amount received for the event came from spotter NBER010, Rudy Whitehurst, near Askewville, in Bertie County NC. He received 8.55 inches of rain. Rudy also gave us some valuable rainfall rate information in the storm summary e-mail. Virginia Beach also received heavy rain. Spotter VVAB001, Bill Henry, reported a storm total amount of 4.4 inches.

Although we have been blessed with quiet year thus far, fall can bring severe weather and tornadoes, so be prepared! And, please keep up the good work of sending us reports.

By Diane Innes

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2001 SPOTTER UPDATE QUESTIONNAIRE

NAME(S) _____ SPOTTER ID _____

E-MAIL ADDRESS _____ AMATEUR RADIO CALL SIGN _____
INTERNET ACCESS? YES/NO

MAILING ADDRESS_____

CITY _____ STATE _____ ZIP CODE _____
(Use 9 digit zip code, if known)

STREET ADDRESS _____
(If different than mailing ad-

COUNTY _____ LAT/LON _____

If LAT/LON is unknown, please give a brief description of you location within the county. _____
_____

HOME PHONE NUMBER (_____)_____-_____ Date of last spotter training _____/_____/_____

MAY WE CALL YOU AT HOME? YES/NO If Yes, When (Anytime/ ____ AM to _____ PM)

Weather equipment? Rain Gage (Yes/No) Anemometer (Yes/No) Thermometer (Yes/No)

NOTE: Complete this questionnaire if you have moved, or information has changed. Send completed form to: SKYWARN, NOAA/National Weather Service, 10009 General Mahone Hwy, Wakefield, VA 23888-2472

TELL US WHAT YOU THINK!!

Please give us input for future articles in the Spotter's Page. Now is the time to ask those unusual weather questions!! Also for those who visit our Webpage, let us know what information we can add to better serve you.

New Wind Chill Index Formula

On November 1, 2001, the NWS implemented a new Wind Chill Temperature Index. The original index, developed in the early 1940s, was based upon wind speed taken at 33 feet above the ground. The old index was calibrated based upon how fast water froze due to the combination of wind and cold temperatures. The new index is based on winds at 5 feet (i.e. near face level). The new calculations also take into account an updated heat transfer theory, which accounts for heat loss from the body to the air under a cold and windy weather regime. Also it takes into account the skin's resistance to heat loss, clear night sky conditions, and raises the calm wind thresholds from 4 mph to 3 mph.

In most cases, the new index is actually "warmer" when compared it to the old chart. For example, under the old index, an air temperature of 20 degrees with a 15 mph wind equated to a –5 degree wind chill, whereas the new index gives a wind chill of +6 degrees for the same temperature and wind conditions. According to retired General Jack Kelly, director of the NWS, "Our main goal [in changing the wind chill index] was to use modern science in revising the index, so that it is more accurate and makes the human impact more prominent." As forecasters, we hope this new index will prove to be more beneficial to the user when making decisions of how to best prepare and respond to cold temperatures.

The new wind chill index chart appears below. An online color version is available at the following URL: http://www.nws.noaa.gov/om/windchill

By Diane Innes

Graphic 4: The New Wind Chill Chart

Wind Chill Chart

Temperature (°F)

Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	29	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Wind (mph)

Frostbite Times — 30 minutes — 10 minutes — 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

Good reports Verses bad reports, Contd.

(Continued from page 4)

report. One of the more vulnerable areas to even coastal lows is the inlets and bays. Unfortunately, we do not have a comprehensive database on the local impacts. Thus, any information you can give is extremely helpful for statement or even possible evacuations. When giving this type of information, we do not expect you to be exact but try to estimate to your closest guess.)

Bad - " Hello, this is Jennifer O'Malley. I live on the Meherrin River and it is rising quickly. (The initial intent of Jennifer's report is good, we need to know if the rivers are rising at a rapid rate. However she did not mention where she was along the Meherrin. Also, how long has she noticed this rapid rise. And lastly how close is the river to its banks . If the river was very low this is not as much of a concern. Yet, rapidly responding rivers and streams have been know to go into flood in 12 hours or less even if their initial levels were very low.)

Hopefully, these examples have given you an idea as to the difference between a good and a bad report. For a specific list of weather to report during a Hurricane or even Coastal Storm, refer to table 3, and normal severe weather reports, refer to table 4. Please, always try to give as much information as possible. If you have any questions, feel free to contact Bill.

Want to be a SKYWARN Spotter??

Do you know others who are fascinated by the weather? If so, tell them about the SKYWARN program and invite them to attend a spotter training session.

Continued Rip Currents

Figure 3: An elevated view of a developing rip current. The foamy surf denoted the area where the rip current is developing and is carving out a channel in the sub-sea surface water sand.
Picture taken from the website: www.rfr.usace.

(Continued from page 2)
terns and conditions. A part of this program involves the local coastal NWS offices alerting the media and warning the public of this potential threat to life.

How is a Rip Forecast Created?

Each day the marine forecaster will assess the threat based on meteorological conditions such as wind speed and direction, the magnitude, period and direction of waves and swell. Once the threat is assessed, the forecaster will issue a statement describing the threat level for that day. The following are the three types of threats that our office will issue.

A HIGH or DANGEROUS threat means that weather and ocean conditions are favorable for the formation of numerous Rip Currents. Several of the Rip Currents have the potential to be strong, with a 3 to 5 mph seaward pull.

A MODERATE or INCREASED threat means that weather and ocean conditions are favorable for a greater than normal potential for rip current formation. Usually several rip currents will form and a few may be strong.

A LOW threat means that weather and ocean conditions for rip formation are weak. However, few rip currents could form, especially near inlets, jetties, piers and sandbars.

When a statement is issued, safety rules are included that may help a potential victim survive the affects of a rip current.

Safety Precautions and Development Indicators of Rips

If you are a beach goer, what safety precautions should you take for Rip Currents? First and foremost, always swim at beaches guarded by Beach Patrol or lifeguards. If this is not possible, avoid going into water any deeper than knee deep. Even if you adhere to these precautions, it is still helpful to know the visible signs of rip currents. The signs of a rip formation is a channel of water which is visibly transferring water from the beach back out sea. It will likely be turbulent due to the carving out of a channel in the sub-sea surface sand. At the time of formation though the rip will still have visible surface waves. (*See Figure 3)* Once a channel is carved out, the flow will become more tranquil and even may look calm in comparison to the surrounding ocean water. At this time the Rip has fully developed as a subsurface current and is counter-balancing the incoming waves. Thus the waves are being damped out before coming onshore. This area of calm is what makes the Rip especially dangerous to the average beach goer. Many weaker swimmers will propagate toward this calm, non-wave area because they feel safer. They may even venture out farther in the ocean because of this false sense of security. More often than not, they realize too late that they are caught in a Rip current and are being transversed into deep water and will need assistance to return to shore.

What To Do if Caught in a Rip Current

What should you do if you are caught in a rip current? First, REMAIN CALM! Signal to someone on the beach, a lifeguard or a friend, that you need help. If you are a strong swimmer, try to SWIM PARALLEL to the beach until you are out of the rip current. Then swim toward the shore. Never try to swim back to shore directly against the Rip current, as this can exhaust and drown even the strongest swimmer. For the less confident swimmers, wade sideways parallel to the beach until you are out of the Rip's pull, then swim back to shore.

Next time you venture to the beach, be sure to check out the Rip Forecast first so that you can be prepared.

By Paule Houle, Forecaster and Diane Innes

An Online Color Version of the Spotter's Page is Available at: http://weather.noaa.gov/akq/

The document is in PDF format, which can be viewed and printed using Adobe Acrobat Reader**7**. Adobe Acrobat Reader is available free of charge from the Adobe**7** Web site (www.adobe.com). **Trained spotters** can receive advance notice of the electronic newsletter by sending your email address to Bill Sammler – william.sammler@noaa.gov.

Have you Moved?

If you have changed your address, will be moving soon, or no longer wish to receive *The Spotter's Page*, please call (757) 899-5732 ext. 223 and let us know. Spotters, you can still participate in the SKYWARN program at your new address. If your new residence is no longer in our area, we will contact the office serving your new locale and let them know that you are available to help!

Cooperative Research, Contd.

(Continued from page 1)

valleys and Piedmont regions of Virginia and North Carolina. When the next system arrives, typically from the south, cold air is in place at the lowest layers of the atmosphere, allowing for the possibility of frozen or mixed precipitation to develop.

A variety of data sets were used, including surface observations, and upper air balloon data from Dulles International Airport, and Greensboro, NC. These two sites are the only upper air balloon sites in or near the Virginia and North Carolina Piedmont.

If precipitation occurred within 2 hours of the balloon launch between the months of November and March, the change in temperature at specific height levels was analyzed and statistically compared with the recorded precipitation in the surface observations. From these comparisons, 4 basic vertical temperature profile charts were developed. Each of these profiles produced characteristic types of precipitation (snow, freezing rain, freezing rain mix, and rain).

The DAMP (Discriminate Analysis Mixed Precipitation) model was developed from these profiles. The model takes forecaster input of vertical heights and critical temperatures in the atmosphere, and then compares these values with the 4 basic profiles. The model then gives the forecaster a probability for the occurrence of rain, a freezing rain mix or snow for Greensboro and Dulles. The forecaster can then utilize this data to make a more informed decision regarding the potential of frozen, freezing or liquid precipitation over our region. The DAMP model promises to be an exciting tool to help us prepare more accurate forecasts this coming winter.

The paper can be viewed online at:
http://ams.allenpress.com/amsonline/?request=get-archive

NOAA Weather Radio Frequencies

KHB37 – 162.55 MHz - Norfolk/Driver, VA
WXM57 – 162.40 MHz- Heathsville, VA
KEC92 – 162.475 MHz - Salisbury, MD
WXK65 - 162.475 MHz - Richmond, VA
WWG33 - 162.45 MHz - Margarettsville, NC
WWH26 - 162.425 MHz- Mamie, NC

Letter from Editor, Contd.

(Continued from page 3)

remember your ID number, then simply give your name and location. We use this information to not only further pinpoint your location but to also give you credit in the "Kudos" section of the newsletter. For HAM radio operators providing reports via our radio links, use your HAM call sign FIRST, then your spotter ID. If you have any questions, feel free to contact Bill Sammler. ***I would also like to remind everyone that the toll free severe weather line is strictly for severe weather reports.*** For general weather information, please use the public line which is (757) 899-4200. Lastly, for those who have access to the internet, I encourage you to peruse the severe weather section of our website. This is a good place to brief yourself on the possible severe weather threat for the day.

Finally, I would like to say thank you and good bye to all of the wonderful spotters I have met over the past 3 years. This will be my last newsletter for the Wakefield office, as, in November, I am transferring to the Arkansas Red River Basin Forecast Office in Tulsa, OK. I have greatly enjoyed my time here, and the opportunity to be the newsletter editor. Have no fear though, the newsletter will live

Upcoming Spotter Training

Tuesday April 9, 2002 - 630pm – Isle of Wight Courthouse – pre-register online, or call Joe at 757-877-6691.

To host a session, please contact Bill Sammler by e-mail or by phone at (757) 899 - 5732. Upcoming sessions are posted online at: http://weather.noaa.gov/akq//calendar.htm

Indian Summer, Contd.

(Continued from page 1)
ceded by one killing frost, and usually, a substantial period of normally cool weather. Indian Summer does not occur every year, and some years may have more than one occurrence. In the Mid Atlantic Region, an Indian Summer typically occurs when a large area of high pressure is anchored along or just off the East Coast. South to southwest winds on the back side of the high usher in an unseasonably warm air mass from the Gulf Coast Region. Depending upon the upper level pattern, the dry warm weather may occur for one day or upwards of a week. Ironically, in many cases, this same high pressure area may also be the culprit for bringing the cold, freezing temperatures to the region. Then as the high shifts east, so does the cold air mass.

In 9 of the past 11 years, an Indian Summer has occurred at Richmond. While Norfolk has also experienced an Indian Summer in 9 of the past 11 years, the years without the occurrence of an Indian Summer are different at both locations. The criteria used for the classification of an Indian Summer was the following: A low temperature of 32 degrees or colder, followed by a period when the high temperatures 10 or more degrees above normal, with no recorded rainfall, during October , November and early December. Many days, especially in the Norfolk area, were disqualified due to rain, or a coastal front moving inland, and not an Indian Summer regime. In the 11 year sample, the average date of the first frost at Richmond was during the first 5 days of November, although the long-term average date of first freeze is mid October. The date for the first frost in Norfolk in the sample was later, generally mid November. Surprisingly, though the climatological date for the first freeze at Norfolk is not until December 1st. (*Graphic 1, on Page 1 shows the average date of the first frost across the Mid Atlantic Region.*) As expected, most of the Indian Summers fell in November and December. However, a few of the warm spells occurred as late as early January. Also, the average length of the Indian summer was 2 to 3 days. However, in 1998, Richmond experienced an Indian Summer for 10 days, from November 28th through December 7th.

So the next time you see a large area of high pressure anchored off the Atlantic Coast for a few days during the Fall months, be prepared to break out your lighter clothes and enjoy the outdoors.

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